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REAL ESTATE

Vol. 1, No. 9 September 1988

OUTLOOK

A Monthly Forecast for the Economy and Real Estate

FORECAST SUMMARY

- The U.S. Department of Commerce reported that second quarter real GNP growth advanced at a revised annual rate of 3.3 percent, slightly faster than the 3.1 percent annual rate originally reported. In all, the rate of real GNP growth in the first half of 1988 was stronger than expected, but the composition of that growth is changing to reflect more reliance on exports and less on consumer spending.

- The June trade deficit widened to $12.5 billion, stalling the continued resurgence in U.S. exports. Much of the June increase lay in the capital goods component: rising imports and falling exports of capital goods attested to the large scale re-tooling effort underway at U.S. manufacturers. For the quarter, the trade deficit fell 14.9 percent to $29.94 billion, its lowest level in three years.

- The Federal Reserve Board remains firm on its commitment to keeping inflation from accelerating. The Fed has gradually tightened monetary policy, raising short-term interest rates by about 150 basis points. Long-term interest rates, influenced more by inflation expectations, could continue their upward climb through the end of 1988.

- Housing starts showed modest gains in July, rising 2.4% above the June annual rate of 1.454 million units to a seasonally adjusted annual rate of 1.489 million units. All of the July advance came from a resurgence in starts of multi-family structures with five or more units, which increased 18.7 percent to 362 thousand units.

- The seasonally adjusted annual rate of existing single-family home sales fell in July to 3.63 million units, down 5.0 percent from the revised June annual rate of 3.82 million units. The July annual rate was still 4.6 percent stronger than the July 1987 annual rate of 3.47 million units. The current forecast projects that rising mortgage interest rates and a slower rate of economic growth will slow the pace of existing home sales in the second half of 1988 to an annual rate of about 3.46 million units, and about 3.28 million units in 1989.

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POWER TO THE PEOPLE!

Economic Commentary

by
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As Sherlock Holmes was wont to say to his faithful colleague, "You look, Watson, but you do not see!" To a large degree, the alarms over inflation that have dominated the economic news this summer have been a prime example of Watson's Syndrome, the tendency to look without really seeing. Yes, the Fed acted absolutely appropriately (more about this later) in raising the discount rate to signal its displeasure with the economy. Yes, prices have become a bit more of a problem than they were earlier in this decade. Yes, unemployment has shrunk to levels that, as recently as ten years ago, have been accompanied by roaring inflation. But all these *transitory* factors ignore a fundamental truth about this economy: the longer term trends are toward higher employment, steady price growth and moderate interest rates.

It has been argued in this column that demographics are moving us toward the potential of an expanding economy through the end of the century. As George Will (one of our most insightful social philosophers -- even if he is a Cubs fan) has put it, "In a democracy, demography is destiny." We now have a population that is massing in the middle years -- those years of high employment, high productivity and high consumption. They are in fact a built-in engine of prosperity that will pull the American economy along. Over the next decade, we should see "standard" rates of both unemployment and inflation hover in the 4.5-5 percent range, with both having the potential to be even lower.But, to turn a phrase, that will be then, this is now. Are there inflationary pressures building in this economy? Alan Greenspan seems to think so. The Fed's conception of where the economy ought to be didn't square with where it actually was, and financial markets weren't cooling things off quickly enough. So, Mr. Greenspan took the economy to the woodshed and administered a quick, painful spanking. Sometimes that type of punishment works; it's clearly better than the lingering death that characterized economic policy in the Seventies. Because of the Fed's actions, interest rates will rise and the economy will slow. Inflation will recede and so will anxiety levels.

While the Fed's actions may have been necessary as a signal, in fact the threat of surging inflation was never really there for three basic reasons:

1.*Interest rates were rising anyway.* There is simply too much debt floating around in financial markets, and lenders were demanding higher return in order to absorb it. This would have slowed the economy even without Fed action.

2.*The economy is growing where there is slack.* The success story of 1988 is the Midwest. A plummeting dollar and resurgent industry has increased exports steadily for nearly two years. And the rust belt has been the beneficiary. So growth is coming at the point of least pressure.

3.*Demographics*. Besides the sheer numbers of people in their productive years, the economy is enjoying higher labor participation rates. As we pointed out last month, more and more families, both with and without children, are providing two (or more) workers to the labor force. So the problems tend to be shorter term in nature. Drought has given food processers and wholesalers a smokescreen to gouge the public; our appetite for imports adds elements of expense to the consumption mix; and in some sectors of the economy capacity pressures exist. But the fundamentals, to which every economy must eventually return, are pushing us towards greater productivity and lower inflation.

Housing benefits from these trends, as well. So far this year, we've seen much stronger sales activity than anticipated in virtually all sectors of the country. A great deal of this stems from sheer numbers. Those productive baby boomers are not only consuming VCRs, but they're buying houses. And our statistics suggest that they will continue to do so through the mid-90s, creating a strong housing market. But, as is the case with the general economy, short term concerns about housing production can obscure longer term reality.

The message here is that, like Watson, we tend to look without seeing. Ultimately, this economy will be shaped over the next decade by the qualities of its population. Nervous financial markets may place interest rates on a roller coaster (albeit a kiddie version), wise and foolish public policy may generate economic cycles, but the basic thrust of economic life is toward growth, productivity and stability. Is that good? Elementary, my dear Watson!

Outlook for the Economy and Real Estate

THE ECONOMIC OUTLOOK

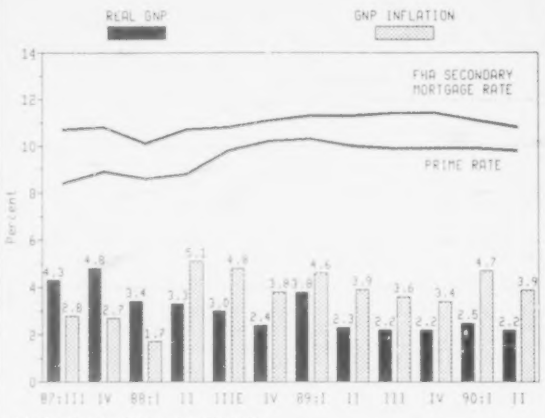
The U.S. Department of Commerce reported that second quarter real GNP growth advanced at a revised annual rate of 3.3 percent, just slightly faster than the 3.1 percent annual rate originally reported. The revised rate was virtually unchanged from the 3.4 percent annual rate of the first quarter. In all, the rate of real GNP growth in the first half of 1988 was stronger than expected, but the composition of that growth is changing to reflect more reliance on exports and less on consumer spending (more below). The strong first half has engendered even stronger concerns relating to the path of inflation in the second six months of 1988. In response, the Federal Reserve has spent the last few months trying to control the economy's seemingly boundless growth potential by raising interest rates about 1 and one-half percentage points. The most recent monthly indicators (though often the most erratic) suggest the Fed's actions are meeting with some success: retail sales softened, new orders were down, unemployment increased, and single-family housing starts and home sales have eased. Paradoxically, a slower second half of 1988 could improve the economy's growth potential in 1989.

Consumer Spending Retreats

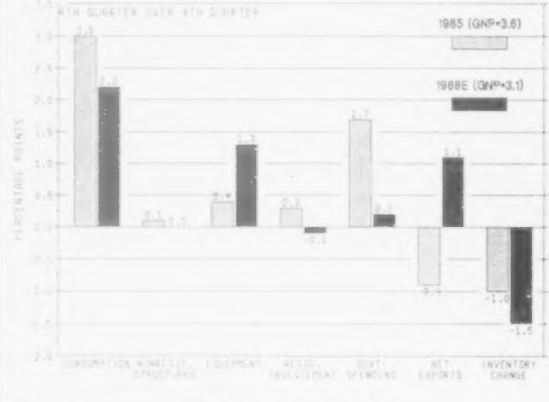
While the recent GNP growth reports have heightened fears of accelerating rates of inflation, there is a comforting trend emerging in the composition of this real GNP growth. Much of the credit for the prolonged economic expansion of the 1980's is due to no other than the willingness to spend of the American consumer. Today, lagging personal income growth, the non-deductibility of sales taxes and personal interest charges are forcing more cautious spending habits. In addition, rising interest rates have increased the costs of credit cards, home equity loans and other lines of credit, all of which adds up to a U.S. consumer who is exercising some new found restraint. The neighboring graph shows the actual percentage point contributions to GNP growth by each sector. In 1988, consumer spending is expected to account for only 2.2 percentage points, down from 3 percentage points in 1985. Midway through 1988, exports appear poised to take up the slack: they are expected to contribute 1.4 percentage points to real GNP growth in 1988, compared to *minus* 0.9 percentage points in 1985. Also, business equipment spending to expand capacity will likely add 1.3 percentage points to real GNP growth in 1988.

The June trade deficit widened beyond most expectations to $12.5 billion, seemingly thwarting hopes for a continued resurgence in U.S. exports. Part of the wider trade gap was due to a rise in imports of consumer goods, but another source of the June increase lay in the capital goods component: rising imports and falling exports of capital goods attested to the large scale re-tooling effort underway at many U.S. manufacturers. In short, domestic production of capital goods has had to be supplemented with capital goods imports. For the quarter, the trade deficit fell 14.9% to $29.94 billion, its lowest level in three years. Both the deficit and the dollar are expected to continue their decline through 1989 and into 1990, with the trade deficit falling to nearly half its 1986 peak by the end of next year.

GRAPH 1: THE ECONOMIC OUTLOOK

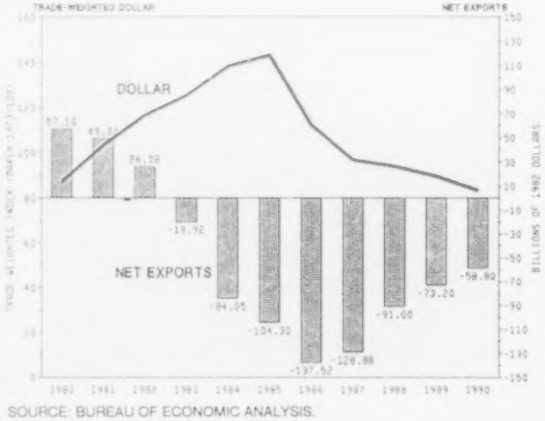


GRAPH 2: CONSUMPTION YIELDS TO EXPORTS



SOURCE: Dept. of Commerce, Bureau of Economic Analysis.

GRAPH 3: THE OUTLOOK FOR THE DEFICIT



SOURCE: BUREAU OF ECONOMIC ANALYSIS.

Wage Increases Remain Modest

Inflation continued to be the hot topic in August as analysts pointed to everything from the trade report to the GNP deflator as an indication that prices are preparing to spiral out of control. However, as capacity constraints and rising food costs nudge prices upward, pressure from higher wage demands, at a time of historically low rates of unemployment, has remained surprisingly modest. The recent rise in the employment cost index (ECI), which was up 4.6% in the second quarter from the year before, appeared to be one of the first indications that wages may be heading higher. But the ECI may have overstated the increase. First, much of the wage hike was the result of higher benefit costs which reflect the recent rise in Social Security taxes. While the rise took place in the first quarter, the year-over-year increases will still evidence the change until 1989. Second, the ECI does not take into account the labor productivity gains of the past year: averaging 2 percent in non-farm businesses and 3 percent in the manufacturing industries. When these productivity gains are accounted for, the unit labor cost index reveals that manufacturing employees actually incurred compensation *reductions* in 1987. Further, even with the second quarter wage gains, their compensation has increased by less than one percent so far in 1988. The message: employment costs are still being held under control by cost-concious businesses that want to avoid building in high wage increases to long-term contracts.

Monetary Policy and Interest Rates

Despite the public debate over how much inflation can be expected in the coming quarters, the Federal Reserve Board remains firm on its own intentions of keeping a lid on inflation. To this end, the Fed has already tightened up monetary policy, raising short-term interest rates by about 150 basis points. Raising interest rates always bears the risk of inducing a recession, but the Fed felt the evidence of an overheating economy was compelling: high employment, an improving trade balance, and capacity constraints being reached in many industries.

But the question remains whether the Fed believes its strategy of incremental rate increases has worked. The most recent set of monthly indicators suggests the Fed might be inclined to allow rates to plateau for a time. But the Fed probably will not place too much stock in any one month's set of statistics, preferring instead to err on the side of caution. This means that long-term interest rates, influenced more by inflation expectations, will likely continue to move up with short-term rates. The current forecast assumes the Fed will remain committed to battling inflation by raising interest rates. Consequently, interest rates are projected to continue their upward climb through the end of 1988, coinciding with annual rates of inflation nearing 5 percent.

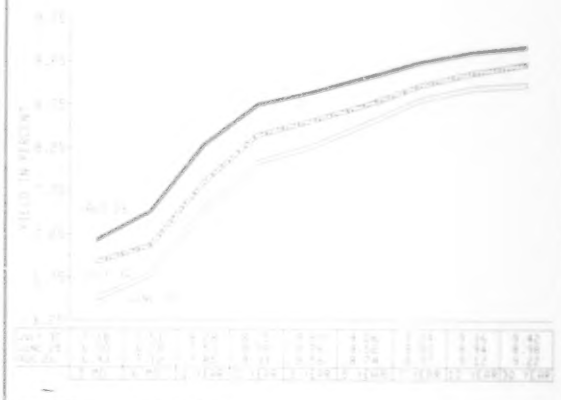
However, if the next few months bring reports of slower economic growth, the Fed could adjust its policy stance. Specifically, if the annual rate of third quarter real GNP growth falls into the lower end of the Fed's target band of 2.5 to 3.0 percent, then an easier monetary policy could ensue. This, in turn, could move the interest rate plateau expected around the second quarter of 1989 up into the fourth quarter of 1988.

GRAPH 4: GAINS IN EMPLOYEE COMPENSATION

. . . ARE MARGINAL

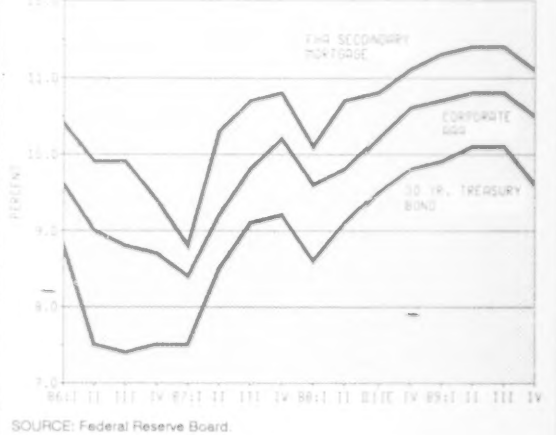
SOURCE: Bureau of Economic Analysis.

GRAPH 5: THE YIELD CURVE



SOURCE: Federal Reserve Board.

GRAPH 6: LONG-TERM INTEREST RATES



SOURCE: Federal Reserve Board.

REAL ESTATE MARKETS

Housing Starts

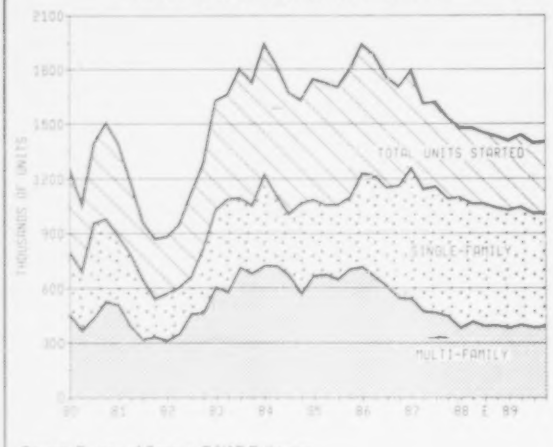
Housing starts showed modest gains in July, rising 2.4% above the June annual rate of 1.454 million units to a seasonally adjusted annual rate of 1.489 million units. However, the July figure reflects a drop of 6.5 percent from a year ago when housing units were started at an annual rate of 1.594 million units. All of the July advance came from a resurgence in starts of multi-family structures with five or more units, which increased 18.7 percent to 362 thousand units. The annual rate of starts of these units had fallen 9.5 percent in June and 22 percent in May. The reduction in backlogs for permit approvals assisted the increase for multi-family starts in July. Starts of privately owned single-family units fell slightly to 1.08 million units, 0.8 percent slower than June's annual rate of 1.089 million units and 5.4 percent below the July 1987 annual rate of 1.142 million units. Rising interest rates are beginning to take their toll on new residential construction.

Both the Northeast and the Midwest appear to be recovering from their depressed May levels, when total starts of privately owned housing units fell in these regions by 24.5 percent and 22 percent, respectively. Starts in the Northeast were up 9.1 percent in July to a seasonally adjusted annual rate of 262 thousand units, while starts in the Midwest rose 12.1 percent to an annual rate of 296 thousand units. After making slight gains in June, housing starts in the South and West fell slightly, dropping 1.2 percent in the South to a seasonally adjusted annual rate of 563 thousand units, and 3.2 percent in the West to an annual rate of 368 thousand units. Compared to one year ago, the Midwest is the only region where the annual rate of housing starts has increased, rising by a substantial 17 percent. In the other regions, the pace of housing starts fell 5.7 percent in the Northeast, 11.3 percent in the South and 14 percent in the West, relative to July 1987.

New Home Sales

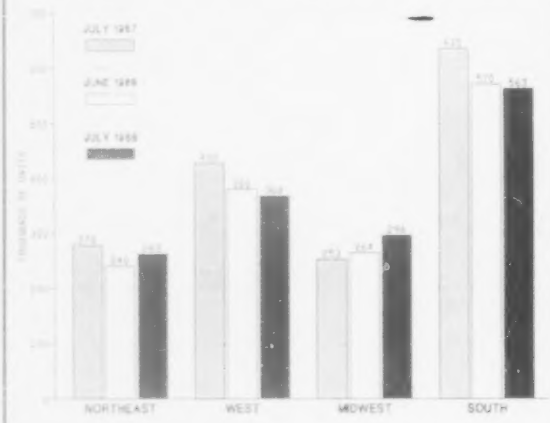
The seasonally adjusted annual rate of new single-family home sales slowed in July to 686 thousand units, down from June's impressive rate of 720 thousand units. The 4.7 percent drop marks the first significant decline in new home sales since the beginning of 1988, when sales began to climb after months of steady decline. Compared with the rate of home sales in July 1987, the news is a little brighter, with new home sales rising 2 percent above their year-ago annual rate of 672 thousand units. In the Northeast, following exceptionally strong sales rates in June, new home sales dropped 18.4 percent to an annual rate of 93 thousand units. Both the Midwest and the South experienced moderate slowdowns in single-family home sales, falling 5.4 percent in the Midwest to an annual rate of 86 thousand units and 4.9 percent in the South to an annual rate of 270 thousand units. In the West, where new home sales have been consistently strong this year, sales crept up by 2.2 percent to an annual rate of 237 thousand units, 24.1 percent above the July 1987 annual rate. New home sales are expected to slow through 1988, averaging an annual rate of 657 thousand units in this quarter and 610 thousand in the next.

GRAPH 7: HOUSING STARTS



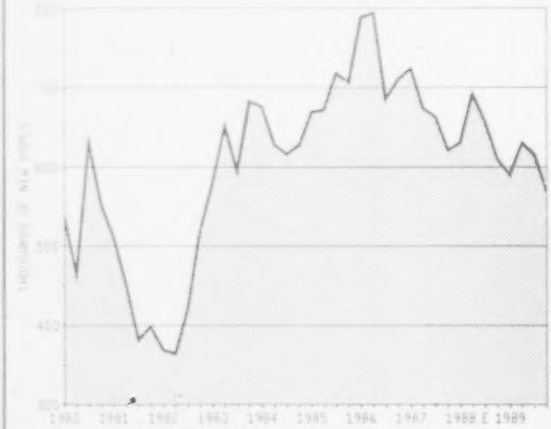
Source: Bureau of Census; E NAR Estimates

GRAPH 8: HOUSING STARTS BY REGION



Source: Bureau of Census

GRAPH 9: NEW HOME SALES



Source: BUREAU OF CENSUS, E NAR ESTIMATES

Existing Home Sales

Mirroring the trend evident in the single-family housing starts and new home sales data, the annual rate of existing single-family home sales fell in July by 190 thousand units to a seasonally adjusted rate of 3.63 million units. But, due to the strong growth throughout the first half of this year, the July rate was still 4.6 percent stronger than the annual rate of 3.47 million units experienced in July 1987. As with new home sales, July's 4.9 percent retreat in the rate of existing single-family home sales registered the first decline since December of last year. In fact, an annual rate of 3.63 million units is a very strong pace for existing home sales: the post-1982 housing recovery high is a 4.1 million unit pace set in December 1986. The decline was due in part to an expectation during May and June that mortgage interest rates were headed higher, thus moving some purchase decisions ahead by one to two months. The current forecast projects that rising mortgage interest rates and a slower rate of overall economic growth will slow the pace of existing single-family home sales in the second haif of 1988 to an annual rate of about 3.46 million units, and about 3.28 million units in 1989.

Existing Home Sales By Region

The drop in the rate of existing single-family home sales was felt across the country, with existing home sales falling in all four regions. In the Northeast, sales fell by 6.8 percent to a seasonally adjusted annual rate of 690 thousand units, down from the revised June annual rate of 740 thousand units. Sales in the Midwest slid 5.1 percent from the June annual rate of 990 thousand units to an annual rate of 940 thousand units. Existing home sales dropped 7.0 percent in the South, pushing the annual rate down to 1.32 million units from the June annual rate of 1.42 million units. In the West, the five month trend of steadily increasing sales finally took a breather, as sales fell 4.4 percent from an annual rate of 680 thousand units in June to an annual rate of 650 thousand units in July. However, as the neighboring graph illustrates, the annual rate of existing single-family home sales in all four regions was faster in July 1988 than it had been in July 1987.

Home Prices

The median sales price of an existing single-family home rose modestly in July to $91,600, 1.6 percent above the June median price of $90,200, and 3.7 percent above the July 1987 median price of $88,300. On a regional basis, the median home price in the South rose 2.1 percent to $85,600, and it fell 2.8 percent to $123,500 in the West. The median existing home price in the Northeast (-0.4 percent to $146,700) and Midwest (+0.9 percent to $70,600) remained relatively unchanged. Meanwhile, the median price of a new single-family home increased 5.6 percent in July to $123,500, which is 17.6 percent above the July 1987 median price of $105,000.

Sean Burns
Beth Maerz
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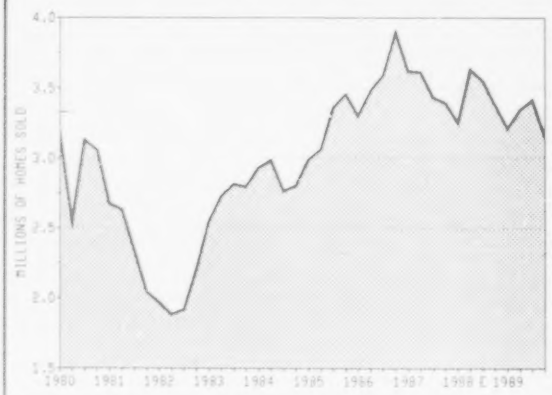
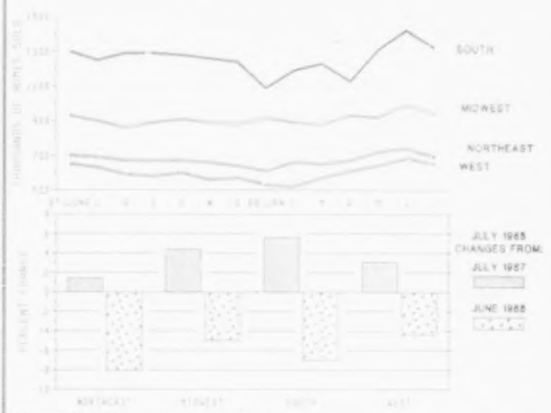
GRAPH 10: EXISTING SINGLE -FAMILY HOME SALES



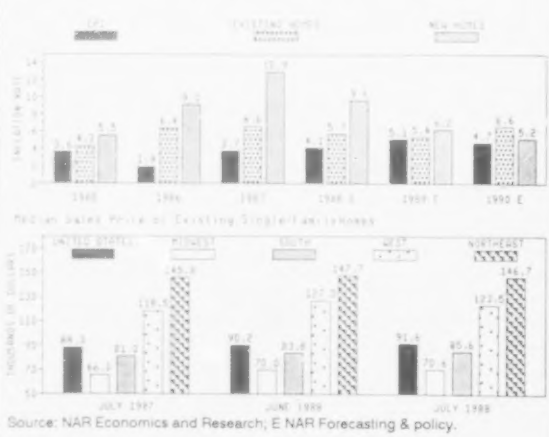
Source: NAR Economics and Research; E NAR Estimates

GRAPH 11:EXISTING SINGLE-FAMILY HOME SALES BY REGION



Source: NAR Economics and Research.

GRAPH 12: HOME PRICES



Source: NAR Economics and Research; E NAR Forecasting & policy.

DEPRECIATION OF REAL PROPERTY UNDER THE TAX CODE

Buildings deteriorate, cars corrode, computers become obsolete, and machinery wears out. While a business will undertake reasonable maintenance to prevent its assets from decaying, the fact remains that their useful lives are limited.

Depreciation is a normal process which occurs regardless of the amount of maintenance undertaken. Because it is a normal process, there is a need to recognize depreciation's effect on the value of properties used in business especially when determining the business's net income for tax purposes. The income tax rules should ideally allow for the expensing of a fixed percentage of the value of each long-lived asset each taxable year.

Experts feel that actual depreciation is approximated by a process of smooth, constant decay with different types of assets decaying at different rates. The tax rules, on the other hand, require that businesses use a fixed formula to determine the amount of depreciation expenses which can be deducted from earned income. These formulas depend upon the predicted lives of the assets and their historical costs to determine the dollar amount of these expenses each year.

Difficulties for investors in these capital goods arise when there are differences between the value of depreciation which has occurred and the value allowed to be deducted according to the formulas in the tax code. To determine the impact of these differences, this article compares the present value of these alternate measures of expenses. This analysis will determine how equitably real assets have been treated using the present values of actual and allowable depreciation expenses. Real assets will also be compared with other types of capital assets using the effective tax rate measure. Investors prefer those assets with the lowest effective tax rate.

I. INTRODUCTION

Experts in the economic theory of taxation assert that the goal of the tax structure should be to treat income from any source equally. However, difficulties arise when attempting to meet this criterion in practice when the measurement of cash flows depends upon accounting tools which may not accurately reflect the actual revenues received and the total costs incurred. These difficulties are most clearly evidenced in the case of capital goods, and particularly for structures.

Investment in real estate is now less attractive owing to the recent changes in the Internal Revenue Code. This study examines the effects of changes in the depreciation allowance for real assets as compared with their treatment under prior law. It will also examine the treatment with respect to the allowances for other types of depreciable assets such as computers, and construction equipment.

The results of this review indicate that the depreciation rates allowed under the current tax code do not allow for full recovery of actual costs within the life of the structure which in turn undermines the incentives for investment in capital goods.

Similarly, the current rules, although improved from the previous tax law, continue to discriminate against investors in structures as compared with investors in other goods. Any investment in machinery or equipment, but not real property, was previously eligible for an investment tax credit which reduced the effective tax rate on the income derived from this equipment.

These deficiencies, if left uncorrected, will generate underinvestment in capital goods in general and structures in particular. Economists believe that underinvestment in capital goods may lead to reduced productivity of labor and other factors of production which in turn could reduce the growth of the economy.

The Role of Accounting Methodologies in Measuring Cash Flows

Differences in the accurate measurement of revenues and costs arise from the use of cash and accrual methods of accounting. Cash accounting records income when actually received and recognizes costs when a debt is satisfied. Accrual accounting, on the other hand, recognizes income and expenses when they are incurred. As an example, large expenses are usually incurred in the early years of a construction project, while the income to be earned from those expenditures is spread somewhat evenly over many successive years. In order to treat this capital income equally with other types of income, it is necessary to allocate the project costs across the number of years over which income will be produced. These costs include the normal wear and tear from the use of the buildings and equipment.

Depreciation Defined

Economic Depreciation. Economists define economic depreciation as the decline in the value of an asset due to age. The accurate measurement of economic depreciation allows economists to gauge the growth of the economy as a whole and any sector within the economy.

Accounting Depreciation. Capital consumption allowances measure depreciation for tax purposes and depend upon formulas to allocate the historical cost of an asset over its depreciable lifetime. Accountants use exact formulas to calculate depreciation for two reasons: first, to determine net taxable income as required by the Internal Revenue Code (IRC), referred to as "tax depreciation"; second, to determine net earnings which will be reported to shareholders on financial statements and is referred to as "book depreciation." In order to determine taxable income, mathematical formulas are used by ac-

countants to calculate the amount of the original purchase price of an asset which has been used during the year.

Several techniques for calculating depreciation expenses have been accepted under the tax code in the last several decades. These methods include straight-line, sum-of-the-years' digits, and declining-balance approaches. These methods and others approximate the amount of the asset which has been depleted during the year. The straight-line approach assumes that the same dollar amount of depreciation occurs in each year of the asset's life. Thus an asset purchased for $100,000 with an estimated life of ten years will be allowed a depreciation expense of $10,000 in each of the ten years. The sum-of-the-years' digits and the declining-balance methods assume that a larger share of the total depreciation occurs in the earlier years of the asset's life. In the example of the $100,000 asset, the sum-of-the-years' digits method allows an $18,182 expense in the first year of the asset's life, but only $1,818 in the tenth year. The double declining-balance method also allows more depreciation in the earlier years than does the straight line method. For comparative purposes, depreciation allowances for a hypothetical investment under each of these methods are demonstrated in Table 1.

Table 1
COMPARISON OF ALTERNATIVE DEPRECIATION METHODS

Assumptions:

Investment amount	$100,000
Salvage value	$0
Asset lifetime	10 years

Depreciation Expense per Year

Year	Straight Line	Sum-of-the-Years' Digits	Double Declining-Balance
1	$10,000	$18,182	$20,000
2	10,000	16,364	16,000
3	10,000	14,545	12,800
4	10,000	12,727	10,240
5	10,000	10,909	8,192
6	10,000	9,091	6,554
7	10,000	7,273	5,243
8	10,000	5,455	4,194
9	10,000	3,636	3,355
10	10,000	1,818	2,684
Total	$100,000	$100,000	$89,263

Impact of Calculated Versus Actual Depreciation

Investment will be affected whenever the method of calculation allowed by law deviates from the actual decline in the asset's value. If the depreciation method required in the tax law is too strict, business owners will not be able to account for the full expense of operating their businesses during the taxable year. Specifically, a business could show a taxable profit while possibly incurring a loss because of the need to replace the capital before it reaches its full tax life. On the other hand, if the tax code is too lenient, capital owners will overinvest in buildings and other capital goods exclusively for the benefits of shielding other income from taxes. This process creates a surplus of these goods and depresses their value.

The Hulten and Wykoff Statistical Analysis of Economic Depreciation

A comprehensive study to determine economic rates of depreciation for various types of capital was performed by Charles R. Hulten and Frank C. Wykoff in 1981. The Hulten and Wykoff {HW} study provides a significant start to determine how equitably alternative investments are treated under the tax code. The HW study collected data on the average sales price of capital assets (new and used) by National Income and Product Accounts classification for each year and vintage. Their statistical analysis of the rate of decay yielded an estimate of the percent change in the price of each asset class for a one year change in age. This provides estimates of the economic rate of depreciation

Estimates of Economic Depreciation Rates

The Hulten-Wykoff study provides estimates of the rates of economic depreciation for six classes of non-residential structures. Their estimates for the industrial and commercial structure classes are presented in Table 2 below. Using these figures, an estimate of the present value of depreciation expenses can be found from a mathematical equation. These estimates are also presented in Table 2.

Table 2
ESTIMATES OF DEPRECIATION RATES AND PRESENT VALUE OF ECONOMIC DEPRECIATION

Structural Class	Depreciation Estimate	Present Value
Industrial	0.0361	$0.474
Commercial	0.0247	$0.382
Residential	0.0130	$0.245

Source: Hulten and Wykoff, and Jorgenson and Sullivan.

All calculations are based upon a one dollar investment. Larger investments are multiples of the estimates provided in the table.

In another study, Dale W. Jorgenson and Martin A. Sullivan, using the methodology developed in the HW study, estimated the rate of depreciation for residential structures. Their results for the residential class are also shown in Table 2.

Table 2 indicates that industrial structures depreciate at the fastest rate of these three classes. They lose about 3.6 percent of their value each year. The wear and tear reduces the output capacity of these structures each year and represents an additional cost of operation. If this cost from every year were to be paid up front in the first year of the asset's life, it would cost 47 cents per dollar of the asset's original value. The two other classes of structures depreciate more slowly and thus have lower present values of economic depreciation of about 38 cents per dollar for commercial structures and 25 cents per dollar for residential structures.

Measurement of Accounting Depreciation

The present value of economic depreciation has been calculated under the assumption of a smoothly and evenly declining asset value. However, to compare this economic depreciation with allowable depreciation, it is necessary to calculate the present value of allowable depreciation deductions. This computed value will depend upon the formulas for calculating deductions under the tax code.

The Tax Reform Act of 1986 (TRA) requires structures to use straight-line depreciation with lifetimes of 27.5 years for residential structures and 31.5 years for nonresidential structures. It is assumed that the structures are placed into service in the middle of the month of July of the first year in accordance with the mid-month convention of TRA. Thus the first year's depreciation is prorated by 11/24's. This convention removes any incentive for firms to make investments at the end of the tax year (or month) in order to receive a full year's (month's) depreciation. The current value of these depreciation expenses can then be determined by computing the present value of these flows. The estimates are given in Table 3.

Table 3
ESTIMATES OF THE PRESENT VALUE OF ALLOWABLE DEPRECIATION

Structural Class	Present Value*
Nonresidential	$0.347
Residential	$0.384

*All calculations are based upon a one dollar investment. Larger investments are multiples of the estimates provided in the table.

Comparing Depreciation Rates and the Present Value of Depreciation Allowed Under the Internal Revenue Code

The two current value measures of depreciation can be compared to determine whether the asset is fairly treated under the IRC (Table 3). A comparison of the treatment of similar assets under alternative tax proposals can be made by modifying the tax code.

Comparing the estimates of depreciation rates provided in the HW study with the present value of depreciation allowances permitted under the tax code, it appears that for industrial and commercial structures, the tax code is somewhat harsh under regular taxes. Residential properties fare better under the tax code than do nonresidential structures. Residential properties receive a current value equivalent deduction of 38 cents per dollar invested while incurring only an estimated 25 cents actual depreciation on the same dollar.

II. MEASURING THE AFTER-TAX RETURNS TO EACH INVESTMENT

The preceding section compared the treatment of a specific class of assets under alternative tax provisions. However, investors frequently wish to compare alternative investments to determine which will fare the best under the current tax code. To make this comparison, a methodology for examining the after-tax returns to each investment was developed by Robert E. Hall.

The Effective Tax Rates

The tax treatment of different classes of capital goods can be compared using an effective tax rate calculated for each class. The effective tax rate is the marginal tax rate on capital income which abstracts from any depreciation deductions and investment tax credits which may apply to various assets. This rate may differ from the statutory tax rate.

For example, a sole proprietor may own a computer used for word processing. The computer may produce $1,000 in income during the first year. Assuming a statutory tax rate of 34 percent, the tax on this income would be $340. However, the sole proprietor may take a depreciation deduction expense of $200 thereby reducing taxable income to $800. The tax burden would now be $272. If the computer were also eligible for a $100 tax credit, the tax liability would be reduced by this $100 to $172. The effective tax rate is 17.2 percent ($172 /$1,000 * 100%), just over half of the 34 percent statutory rate.

The effective tax rate (ETR) can be calculated for different classes of assets and compared. Hall estimated the effective tax rates for broad asset classes using the parameters provided in the tax code and assumed certain market rates of return to perform the analysis. Those classes with the lowest ETR are treated the most favorably and are preferred by investors. Calculations of effective tax rates for different asset classes for the 1981 ERTA rules from Hall's work are shown in Table 4.

Table 4
EFFECTIVE TAX RATES ERTA 1981 RULES

Asset	Effective Rent	Tax Rate	Depreciation Assumptions: Actual	Allowed	ITC
Equipment	0.139	-2.00	0.10	0.15	0.10
Plant	0.094	37.00	0.03	0.06	0.00
Intangibles	0.140	0.00	0.10	#	0.00

ITC -Investment Tax Credit

-infinite depreciation (expensing), all depreciation expenses are deducted against income in the period the expenses are paid.

*Assumes a zero inflation rate and a 46 percent marginal corporate tax rate.

Source: Robert E. Hall, "Tax Treatment of Depreciation, Capital Gains, and Interest in an Inflationary Economy."

Using Hall's methodology, the effective tax rate for these classes under current tax law can be calculated. These estimates are given in table 5.

Due to favorable depreciation rates and the investment tax credit, equipment, such as automobiles and computers, in effect received a subsidy under the ERTA rules. Whereas commercial real property (plant) paid an effective corporate tax rate of 37 percent on the income

Table 5
EFFECTIVE TAX RATES TRA 1986 RULES

Asset	Effective Rent Tax Rate		Depreciation Assumptions: Actual	Allowed	ITC
Equipment	0.161	21.0	0.11	0.25	0
Plant	0.098	36.0	0.04	0.03	0
Intangibles	0.140	0.0	0.10	#	0

ITC -Investment Tax Credit

-infinite depreciation (expensing), all depreciation expenses are deducted against income in the period the expenses are paid.

*Assumes a zero inflation rate and a 34 percent marginal corporate tax rate

Source: NATIONAL ASSOCIATION OF REALTORS estimate.

earned. Income from intangible assets was effectively not taxed due to the complete write-off of the value of these types of assets in the year of their purchase.

Under the Tax Reform Act of 1986 rules, equipment now pays an effective 21 percent income tax rate, while real assets still pay a higher 36 percent rate. This illustrates that although the gap has narrowed, equipment continue to be favored over real property. In effect, intangibles are again not taxed.

III. CONCLUSIONS

Depreciation can and has been used as a tool in fiscal policy to help stimulate specific industries and the economy as a whole. If depreciation rates allowed under the tax code are higher than the rate at which deterioration actually occurs, then investors will have an incentive to purchase these favored assets. This situation can result from a policy decision to favor a particular class of assets or through a mismatch of the method of allowable depreciation with the actual depreciation.

Most analysts agree that actual, economic depreciation follows an exponential pattern. This pattern is most closely approximated by the declining balance method of accounting for depreciation expenses. The straight line method provides a very rough estimate of actual depreciation and can lead to less than full accounting for these expenses especially for long-lived assets.

Different classes of assets will generally have different effective tax rates, because specific industries can be targeted for more favorable treatment by adjusting the allowable depreciation rates. This effect can be magnified by the simultaneous use of an investment tax credit. An investment tax credit allows a certain percentage (or amount) of the purchase price of a capital good to be deducted directly from the purchaser's tax liability. The basis of the asset may be adjusted for the tax credit and thus the depreciation allowances will be based upon the purchase price of the asset less the investment tax credit.

The Role of ERTA

The ERTA of 1981 did not require the above adjustment to the basis, making assets eligible for the investment tax credit even more attractive than ineligible assets. Some analysts have suggested that the combination of short depreciable lives and liberal investment tax credits under the ERTA have resulted in negative effective tax rates for certain classes of assets, most notably automobiles and light-duty trucks. The classes of assets with longer depreciable lives and that were ineligible for the investment tax credit were subject to high effective tax rates and subsequently were not preferred by investors.

Real estate investments were not eligible for the investment tax credit under ERTA. While real property did receive faster depreciation under ERTA, these classes of assets did not receive the same treatment as did short-lived classes. Under current law, real estate investments still are less favored vis-a-vis other investments. This tax treatment bias against real estate has the potential to lead to pronounced problems from underinvestment in real capital and overinvestment in personal capital goods.

The Role of TRA

The Tax Reform Act of 1986 lengthened the depreciable lives for most capital assets and altered the method under which depreciation deductions must be calculated. Real properties must use the straight line method even though most experts agree that decay occurs in an exponential manner. Personal property may use the declining balance method but the recapture provisions will apply if the asset is sold before retirement.

The TRA partially levelled the differences in the effective tax rate of equipment versus real property, although short-lived assets are still favored over long-lived assets.

Source: Depreciation, Inflation, and the Taxation of Income From Capital, Ed. Charles R. Hulten, Washington, D.C., The Urban Institute Press, 1981.

1. Robert E. Hall, *Tax Treatment of Depreciation, Capital Gains, and Interest in an Inflationary Economy*, pp. 149-166.
2. Charles R. Hulten and Frank C. Wykoff, *The Measurement of Economic Depreciation*, pp. 81-123.
3. Dale W. Jorgenson and Martin A. Sullivan, *Inflation and Corporate Capital*, pp. 171-237.

*This article is drawn from *The Tax Treatment of Real Estate Depreciation*, available from the National Association of Realtors.

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U.S. ECONOMIC OUTLOOK

September 1988

	QUARTERS								YEARS				
	ACTUAL		FORECAST						ACTUAL		FORECAST		
	88.1	88.2	88.3	88.4	89.1	89.2	89.3	89.4	1986	1987	1988	1989	1990
AGGREGATE ECONOMY													
Gross National Product (billions of dollars)	4725	4820	4913	4989	5092	5171	5244	5316	4240	4527	4862	5206	5537
% Change	5.4	8.3	8.0	6.3	8.5	6.3	5.8	5.6	5.6	6.8	7.4	7.1	6.4
% Change (w/out inflation)	3.4	3.3	3.0	2.4	3.8	2.3	2.2	2.2	2.8	3.4	4.1	2.9	2.3
Index of Industrial Production	134.5	136.0	133.0	139.6	139.9	140.5	141.1	141.9	125.1	129.8	137.0	140.8	143.6
Manufacturing Capacity Utilization Rate	82.7	83.1	83.9	84.1	83.8	83.9	84.1	84.1	79.7	81.0	83.5	84.0	84.0
Domestic Auto Sales (millions)	7.6	7.5	7.9	7.6	7.4	7.4	7.3	7.3	8.2	7.1	7.7	7.3	7.2
Unemployment Rate - Civilian	5.7	5.4	5.3	5.2	5.1	5.1	5.0	5.0	7.0	6.2	5.4	5.1	5.0
Civilian Employment-Household basis (millions)	114.2	114.6	115.4	116.0	116.5	116.9	117.4	117.8	109.6	112.4	115.1	117.1	118.8
Percent change	2.6	1.5	2.7	2.2	1.4	1.6	1.5	1.5	2.3	2.6	2.3	1.8	1.4
Consumer Prices (CPI)	3.4	4.8	4.7	5.2	5.7	5.2	4.8	4.3	1.9	3.7	4.1	5.1	4.7
GNP Deflator	1.7	5.1	4.8	3.8	4.6	3.9	3.6	3.4	2.7	3.3	3.2	4.1	4.0
Federal Tax Receipts (NIPA) % of GNP	20.1	20.4	20.0	20.0	20.1	20.2	20.2	20.2	19.5	20.2	20.1	20.2	20.7
Federal Expenditures (NIPA) % of GNP	23.4	23.1	22.8	22.8	23.0	22.9	23.0	22.8	24.4	23.7	23.0	22.9	22.6
Deficit(NIPA)	-155.1	-130.9	-137	-138.7	-144.3	-141.5	-144.5	-141.2	-205.6	-157.8	-140.4	-142.9	-114.5
% of GNP	-3.3	-2.7	-2.8	-2.8	-2.8	-2.7	-2.8	-2.7	-4.9	-3.5	-2.9	-2.7	-2.1
REAL ESTATE MARKETS													
HOME SALES													
Total Single-family Home Sales (thousands, single-family resales plus 97 percent of single-family starts)	4314	4660	4579	4382	4205	4350	4389	4132	4712	4648	4484	4269	4214
Percent change -- year ago	-10.1	-0.8	1.1	-1.5	-2.5	-6.7	-4.2	-5.7	10.8	-1.4	-3.5	-4.8	-1.3
Existing Single-family Home Sales (thousands)	3250	3630	3550	3375	3210	3340	3410	3150	3565	3526	3451	3278	3205
Percent change -- year ago	-10.1	0.6	3.5	-0.4	-1.2	-8.0	-3.9	-6.7	10.9	-1.1	-2.1	-5.0	-2.2
Housing Starts (thousands)	1477	1477	1461	1419	1340	1381	1379	1388	1812	1634	1458	1372	1405
Percent change -- year ago	-17.0	-8.0	-9.7	-7.4	-9.3	-6.5	-5.6	-2.2	4.1	-9.8	-10.7	-5.9	2.4
Single-family Units	1097	1062	1063	1026	974	1012	1010	1014	1183	1157	1062	1002	1018
Percent change -- year ago	-11.9	-6.6	-7.9	-5.9	-11.2	-4.7	-5.0	-1.2	10.4	-2.2	-8.2	-5.6	1.5
Multi-family Units	380	415	398	393	366	370	369	374	630	477	397	370	387
2-4 Family Units	56.3	56.7	54.4	53.6	50.0	50.4	50.4	51.1	84.9	65.7	55.2	50.5	52.9
Percent change -- year ago	-29.0	-21.3	-1.7	-4.8	-11.2	-11.0	-7.3	-4.8	-9	-22.6	-16.0	-8.6	4.7
5+ Family Units	324	358	344	339	316	319	319	323	545	412	341	319	335
Percent change -- year ago	-28.7	-9.6	-16.0	-12.3	-2.3	-11.0	-7.3	-4.8	-5.6	-24.4	-17.1	-6.4	4.7
New Single-family Home Sales (thousands)	630	697	657	610	590	630	615	570	750	671	649	601	550
Percent change -- year ago	-12.9	3.4	-2.7	-1.8	-6.3	-9.6	-6.4	-6.6	9.0	-10.5	-3.4	-7.3	-8.5
Mobile Homes Shipped (thousands)	207	220	214	218	213	217	217	219	246	233	215	217	223
HOME PRICES													
Existing Home Prices - Median ($1000)	87.8	88.9	92.0	93.4	94.1	94.8	96.1	96.6	80.3	85.6	90.5	95.4	101.7
Percent change -- year ago	4.2	4.5	6.7	9.8	7.2	6.6	4.5	3.4	6.4	6.6	5.7	5.4	6.6
New Home Prices - Median ($1000)	112.9	112.9	114.5	115.5	117.0	121.0	122.5	123.7	92.0	104.0	114.0	121.1	127.5
Percent change -- year ago	16.0	9.1	7.8	3.3	3.6	7.1	7.0	7.1	9.1	12.9	9.6	6.2	5.2
FINANCIAL MARKETS													
Long-Term Interest Rates													
30-year FRM (FHA Secondary)	10.1	10.7	10.8	11.1	11.3	11.4	11.4	11.1	9.9	10.2	10.7	11.3	10.8
1-year ARM (without buydown)	7.5	7.6	7.6	7.9	8.2	8.3	8.2	8.0	7.9	8.2	7.7	8.2	7.6
30-year Corporate AAA Bond Rate	9.6	9.8	10.2	10.6	10.7	10.8	10.8	10.5	9.0	9.4	10.1	10.7	10.2
30-year Government Bond Rate	8.6	9.1	9.5	9.8	9.9	10.1	10.1	9.6	7.8	8.6	9.3	9.9	9.4
Short-Term Interest Rates													
Federal Funds Rate	6.7	7.2	8.0	8.2	8.4	8.5	8.5	8.1	6.8	6.7	7.5	8.4	8.0
3-month T-Bill Rate	5.7	6.2	7.1	7.4	7.6	7.8	7.9	7.5	6.0	5.8	6.6	7.7	7.1
Prime Rate	8.6	8.8	9.8	10.2	10.3	10.0	9.9	9.9	8.3	8.2	9.4	10.0	9.8
Discount Rate	6.0	6.0	6.3	6.7	6.9	6.9	6.9	6.9	6.3	5.7	6.3	6.9	6.7
Value of the U.S. Dollar (Trade-Weighted Avg.)	90.0	90.4	97.8	98.1	95.0	91.3	87.3	85.0	112.3	96.9	94.1	89.7	83.4
Percent Change	-9.4	1.7	37.1	1.1	-12.0	-14.7	-16.4	-10.1	-21.6	-13.6	-2.9	-4.7	-7.1

Source: Forecast produced using Laurence H. Meyer and Associates' model of the U.S. economy.
Assumptions and simulations by Dr. John Tuccillo, Dr Frederick Flick, Sean Burns and Beth Maerz.

EQUAL HOUSING OPPORTUNITY